downtime of obtaining a replacement braking cartridge and installing it on the unit. Consider a construction crew that is out in the field using a table saw when a false trip occurs—if a replacement cartridge is not immediately available, considerable time and resources will have to be expended to travel to purchase the new cartridge and install it. It may be necessary to keep an extra replacement cartridge on hand in the event the cartridge in the saw is tripped.

Another safety concern is the damage to the blade that may occur in the event of a false trip. With the combination of an aluminum pawl and a carbide tooth blade, our members believe that the carbide teeth could either be knocked off or loosened. If knocked off during the braking operation, the teeth could be propelled up through the opening in the table. In the event teeth are loosened, an operator would not be aware and a restart of the saw could result in carbide teeth being propelled directly from the blade at the operator at an extremely high velocity, which is an obvious safety hazard. For this reason, manufacturers would have to recommend replacement of the blade in the event of a brake cartridge trip – false trip or not. This could add a significant additional cost to the consumer. Blades can cost as much as $100.00.

Thus, the various costs to consumers and manufacturers associated with implementing the SawStop technology are enormous in light of the unquantifiable benefits. Furthermore, the large increase in production costs could force companies to move production from the United States to overseas. Finally, although no definitive marketing study has been undertaken, it is highly questionable in a marketplace with very competitive pricing whether consumers would even be willing to pay even a 25% premium for a table saw equipped with a device that will not prevent or even lessen a large percentage of table saw injuries.

## V. The Commission Should Deny the Petition and Defer Any Action to the Appropriate Voluntary Standards Organization.

Table saws of the type proposed to be regulated by the Petition are the subject of a voluntary standard promulgated by UL: UL 987. UL 987 was first promulgated in January 1971. Products manufactured and sold by members of the PTI universally comply with the provisions of UL 987, and PTI believes that there is virtually universal compliance with its provisions in the marketplace.

UL 987 includes provisions for warnings and instructions for proper saw use and for guarding saw blades from user contact. The Commission staff has actively participated in and contributed to those activities, and continues to do so. As the Commission's NEISS data shows, these continuing efforts have contributed to the reduction of in the rate of table saw injuries.

Since it was first issued, UL 987 has had an active and on-going revision process and it is currently in its sixth edition. Currently, UL has established the Standards Technical Panel ("STP") for Electric Tools, which reviews UL 987. STP's consist of a group representing a variety of interests that discuss and review standards. STP's, through their members, review and comment on proposed changes to standards, including UL 987. Although Petitioners claim that the STP for Electric Tools "is comprised mainly of representatives from saw manufacturers" that is not true. The rules governing STPs require a balance among various groups. Commission staff; users; and general interest parties, including Stephen Gass, are all members of, or participants in, the STP for Electric Tools. Each member has equal rights to submit proposals, participate in meetings and vote. While, under Commission policy, the Commission staff does not formally vote on proposals, it provides data and expert commentary on those proposals to assist the STP.

Mr. Gass has made a proposal based on the SawStop technology to the STP for Electric Tools, but the Petition mischaracterizes the action of the STP on the proposal. The Petition

states at page 9 that, the "SawStop technology has been discussed by the UL panel responsible for safety standards concerning stationary and fixed electric tools and that panel has decided not to take any action because it says it does not have the ability to independently review the technology." To the contrary, the STP engaged in considerable debate over the proposal and, as a result, raised numerous concerns, including reliability, the impact of high braking forces on small table saws, and other economic considerations. Further, the STP concluded that significant research is necessary before the STP can begin to consider requiring such a system for table saws. The STP informed Mr. Gass that the proposal would have to be resubmitted in the correct format and include criteria for acceptance before it could be considered for submittal to the STP for voting. Mr. Gass did not resubmit his proposal.[22]

The Consumer Product Safety Act demonstrates a Congressional intent that the Commission cooperate with, and defer where appropriate, to the voluntary standards process. While Section 9 of the Act permits the Commission to either adopt as a mandatory standard an existing voluntary standard, or rely on a voluntary standard, in this instance neither option is necessary or appropriate. Instead, in light of the limited resources available to the Commission, and in light of the vibrant and ongoing review of UL 987, the Commission should instead deny the Petition and let the voluntary standard process continue its successful efforts to reduce injuries as a result of table saws.[23]

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[22] In the "Index of Petitioners Petition to Initiate Rulemaking for Table Saws" attached to the Petition, presumably prepared by Petitioners, seven of the individuals are noted to be from "U.L. Int'l Ltd." with the clear implication that UL International is in favor of the Petition. To the contrary, those individual signators have sent a letter to SawStop LLC dated July 24, 2003 advising that there was no intention for the signatures to indicate the approval of UL International. In fact, the letter, signed by all seven individuals, states that they were shocked to learn that their statements were interpreted as representing the view of UL International. The seven individuals demanded immediate and unconditional removal of their names from the Petition. A copy of the July 24, 2003 letter, as well as Mr. Fanning's July 28, 2003 letter forwarding the July 24, 2003 letter to the Commission are attached as Exhibit E.

[23] Indeed, as discussed in Section VI below, the STP for Electric Tools is considering additional changes to UL 987 designed to further reduce kickback injuries.

## VI. There are Better Alternatives to Granting the Petition.

Rather than imposing the unproven and speculative technology on the industry, the Commission should deny the Petition and allow Petitioners to pursue marketing a saw with the SawStop technology. In this fashion, the Commission will allow the free market to decide if the technology is valid, effective, and accepted by consumers. Consumers will have the benefit of being able to choose whether they wish to have the technology at the added cost (assuming it can ever be effectively implemented on a mass produced product), without the entire industry, and in turn, the consumers, having to incur the cost of implementing the unproven technology on all table saws.

As indicated above, table saws are a relatively safe product, and the accident rate has continued to decline due to improved design and better education of the consumer. Despite the decline in table saw injuries, the Power Tool Institute and its members continue to work on several levels to address and attempt to reduce table saw injuries further. Several of theses efforts were in progress long before the introduction of SawStop, and the Commission should allow these efforts to continue. Examples of these efforts are:

- PTI, in cooperation with UL and CPSC, produced a video on Table Saw Safety. This video can be viewed in its entirety on PTI's Web site (www.powertoolinstitute.com). It is also provided to users and consumers free of charge and widely distributed to schools with vocational and technical programs;
- PTI has a working committee currently in place whose objective is to continue to improve mechanical guarding systems. A major goal is to make the guarding system less likely to be removed. CPSC and industry data show that, in approximately 73% - 85% of the table saw hand/arm accidents, the guard was not in place;

- As discussed above, PTI and several of its member companies are members of UL's STP for Electric Tools. The STP is currently considering a proposal to include a riving knife on table saws to help reduce kickback and accidents caused by the hand being pulled into the blade due to kickback. This draft proposal is attached as Exhibit F. Moving forward with the riving knife proposal was approved by a straw vote at a prior STP meeting. Mr. Gass was in attendance and voted affirmatively;
- Members of the Power Tool Institute have entered into a joint venture agreement to share their knowledge, technology and resources to conduct research into the development of technology for a blade contact injury avoidance system for table saws. This multi-million dollar project is anticipated to be completed within eighteen (18) months. The goals of the project are to develop an enhanced safety system that is practical, feasible, and cost effective and that can be integrated into a table saw the market accepts.

Thus, there are a number of alternatives to granting the Petition that are already in place and that are directed to improving table saw safety. The continuation of these alternatives would be placed in great jeopardy by granting the Petition, due to the tremendous impact on the industry as a whole. In light of the inherent problems and unanswered questions concerning the proposed technology, the Commission should allow the existing efforts to proceed.

## CONCLUSION

As discussed above, the Petitioners' patent applications are extremely broad and far-reaching in the area of the technology proposed in the Petition. Indeed, the Petitioners' patent applications cover many aspect of the proposed standard. There can be little question that the underlying goal of the Petitioners is to set the stage for an economic windfall to the Petitioners

by forcing manufacturers to enter into licensing agreements with the Petitioners in the event a mandatory standard is enacted. The Petitioners cite the number of projected injuries, the tremendous toll in suffering and the significant economic costs of the injuries as reasons for the need for more effective safety standards for table saws. However, based on the number of table saws produced annually, the Petitioners stand to receive annual royalties estimated at $15.8 million a year without any risk of liability expenses that may be attributable to their patented designs.

Significantly, unless market forces allow additional research and technology development to occur, manufacturers may be forced to obtain a license and pay royalties to SawStop, thus impeding further technological developments. This is important because any new technology that performs up to standards and is more economically feasible for the end-user, or that is superior, may not be able to be developed.

PTI believes this petition is ill timed, the technology is flawed and that several other options are in progress, all working towards the goal of further reducing table saw injuries. Petitioners have not demonstrated that consumer safety will be increased by this proposed mandatory rulemaking. Certainly, Petitioners have not demonstrated that the enormous costs they seek to impose on consumers and manufacturers with their Petition is outweighed by the unsubstantiated benefits. For these reasons, we respectfully request that the Commission deny the request for rulemaking.

Exhibit A

## Update on saw stop

07-14-2003, 7:45 PM



**Update on saw stop**

Post #1

**Lee Schierer**
Member

Joined: Feb 2003
Location: McKean, PA

I didn't want this to get buried in the previous post, but I think that rumors are bad and their seemed to be more than the usual amount of trffic on a post. So I went right to the horse in this case and asked (Note: I asked them via e-mail this moring and received this response the sme afternoon.). The following is their lengthy response to my e-mail.

"Dear Mr. Schierer,

Thanks for your email and interest in our technology. Yes, there are a lot of rumors floating around on the various woodworking forums regarding our technology. When we begin shipping our saws later this year and around the beginning of next year, hopefully a lot of those rumors will be put to rest.

Let me try to respond to your comments and answer your questions in the order presented. First, I agree that in the past people have tended to disconnect safety devices because they interfere with what they were doing, but I believe SawStop will be different. Our technology does not interfere with how the saw is used, so there will be no motivation to disconnect the device. Also, our saws will have a self-test system that detects whether key components are installed and functioning properly. If not, then the saw will not run.

If you have an accident and our system is triggered, the user will have to replace a brake cartridge ($59) and probably the saw blade. The process is simple and takes about as much time as changing the blade. Hopefully, most users will not have an accident and will not need to replace the brake cartridge, but if they do, we do not think the cost of the cartridge and a new blade will be a significant impediment when compared to the increased safety of the saw.

Yes, we and around 350 other individuals jointly filed a petition with the U.S. Consumer Product Safety Commission to look at adopting new performance

based safety standards for table saws. You can see a copy of the petition at http://www.cpsc.gov/library/foia/fo...Bladesawpt1.pdf.

We filed the petition because we think it will help make saws safer. Every year in the U.S. there are over 30,000 serious injuries involving table saws. About 10% of these are amputations, and about 1.5% are to teenagers and young adults. These injuries come at a tremendous cost to society in medical expenses, disability, worker's comp, and rehabilitation, not to mention pain and suffering. These injuries can now be minimized, and we believe they should be.

We recognize there is only a very small chance the petition will be granted, mainly because our saws are not yet out in the field. Nevertheless, we believe the petition is worthwhile because it will allow the CPSC to analyze both the technology and the cost to society of table saw injuries. Society will then have more information to decide whether to adopt new safety standards after our technology has been in the field for a period of time.

We also hope that filing the petition will motivate other manufacturers to adopt something like our technology sooner than they otherwise would. We have spent the last two years talking with all of the major saw manufacturers about our technology, but no manufacturer has adopted the technology. They all agree the technology is great, but they would have to redesign their saws and retool their manufacturing to adopt it, and none of them want to incur that cost if they can avoid it. The result is that people are being injured unnecessarily.

We recognize that requiring table saws to be manufactured with something like SawStop will limit how manufacturers can make saws, and will limit what saws people can buy, but when we weigh that against the benefit of minimizing tens of thousands of severe injuries every year - many to students and employees who do not choose what saw they work on - we come down on the side of minimizing the injuries. It is the same rationale that is behind the regulations that currently require blade guards on saws, and seat belts in cars - the benefits outweigh the costs.

Thanks again for your email. Let us know if you have any other questions.

David Fanning

SawStop, LLC
22409 SW Newland Road 503-638-6201
Wilsonville, OR 97070 503-638-8601 fax
fanning@sawstop.com http://www.sawstop.com

"

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Lee Schierer - McKean, PA
Report Post | IP: Logged

Posts: 325

profile pm email www search buddy AIM edit reply

07-14-2003, 8:08 PM **Sounds Like**

Post #2

SawStop, LLC
22409 S.W. Newland Road
Wilsonville, Oregon 97070
Phone (503) 638-6201
Fax (503) 638-8601
www.SawStop.com

August 2003

Thanks for having placed a pre-order for a SawStop contractor or cabinet saw. We had hoped to begin shipping our saws this summer; at least to those who pre-ordered a saw before mid-November, 2002. Unfortunately, it now looks like we will not be able to ship our first saws until the beginning of 2004.

The delay is the result of a couple of factors. First, we have developed several significant improvements to the braking system and the mechanical structure of our saws. Specifically, we modified the design so that you can easily update the control system if there are changes to that system in the future. We also designed a bigger, better switch, and we modified the cabinet saw so that you can switch between a European-style riving knife and a blade guard more easily and quickly. Rather than proceed to manufacture our original designs and save the improvements for later models, we decided to implement the improvements in our first saws so that you who have pre-ordered our saws would receive the very best designs we have. These improvements result in much better saws, but they have delayed our manufacturing. It has also taken quite a bit more time than we expected to finalize all of the various manufacturing details.

Anyway, we are now well into manufacturing, and have begun to receive parts. We will soon begin our production, and we plan to ship our first cabinet saws around the beginning of the year. We plan to ship our first contractor saws shortly thereafter. The factory we are working with is one of the most highly regarded factories for making saws and other woodworking equipment. They are located in Taiwan, and they have a long history of making woodworking equipment for numerous well-know brands.

We appreciate your patience as we work to bring out our new technology. When you see our saws we are confident that you will consider them worth the wait. As always, please feel free to call or send us an email if you have any questions or comments.

Thanks again,

Stephen Gass, President
Email: sgass@sawstop.com

SawStop™

FAQs

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Licensing

About SawStop, LLC

Contact Us

Contact Manufac.

Trade Shows



How much will a saw with the SawStop system cost?

We estimate that the retail price of a contractors saw will increase by approximately $50-100 after a manufacturer retools to add the SawSt system as original equipment.

Will static, such as often builds up on laminates, cause the SawStop syster misfire?

No.

Does the user have to wear any special clothing or stand on a special mat?

No.

Does the voltage of the saw or size of the motor affect the operation of the SawStop system?

No.

Is the motor or arbor of the saw damaged when the SawStop system is triggered?

No. The SawStop system cuts power to the motor when the system is triggered. When the SawStop system is triggered and the brake strike the moving saw blade, the saw's arbor assembly disconnects from the worm gear upon which it rides and is caught by a pad inside the saw's housing. The arbor assembly snaps back into place after being lifted f the pad.

Will the SawStop system work with wet wood?

Yes. Neither wet nor green wood will trigger the SawStop system.

Can the SawStop system be used with other types of woodworking equipm

The SawStop system can be used with practically any type of woodworking equipment, such as miter saws, chop saws, radial arm saws, circular saws, sliding table saws, jointers, band saws, shapers the like. The electronics, detection and firing systems are the same, w the brake mechanism tending to vary between different types of woodworking equipment.

Exhibit D

SawStop, LLC
22409 S.W. Newland Rd.
Wilsonville, OR 97070 USA
Phone: 503-638-6201
Fax: 503-638-8601
Email: info@sawstop.com

# Price List and Pre-Order Form

Name: _____ Ship to: _____

Address: _____

_____

_____

Date: _____ Email: _____

| Item | Price | Quantity | Total |
|---|---|---|---|
| **10" Cabinet Saw**, including:<br>3 hp, 1 phase, 230 V, 60 Hz., TEFC motor<br>Heavy-duty arbor & arbor bearing<br>Contact detection & braking system<br>European-style riving knife to minimize kickback<br>Cast-iron table & extension wings<br>Cast iron, widely spaced trunnions<br>Miter gauge T-slots<br>Zero clearance insert<br>Blade guard<br>Blade shroud dust collection | $2,199.00 | | |
| **Options**: | | | |
| 3hp, 3 ph. motor, specify 230 or 460 V | N/C | | |
| 5hp, 3 ph. motor, specify 230 or 460 V | $100 | | |
| 5hp, 1 ph. motor, specify 230 or 460 V | $200 | | |
| 30" T-square fence with table | $200 | | |
| 50" T-square fence with table | $300 | | |
| **Accessories**: | - | | |
| Extra Brake Cartridge for 10" blade | $59 | | |
| Brake Cartridge for 7" dado | $69 | | |
| Brake Cartridge for 8" dado | $69 | | |
| TOTAL | | | |

Do you prefer a left or right tilt saw? Left_____ Right_____

This pre-order is not binding on either party until confirmed and a deposit is requested and received. Efforts will be made to fill pre-orders in the order received. Taxes and shipping are extra. Specifications subject to change. The contact detection and braking system works to minimize injury. The severity of an injury will depend on the speed at which you contact the blade. You may incur a serious injury on a SawStop saw.

SawStop, LLC
22409 S.W. Newland Road
Wilsonville, OR 97070 USA
Phone: 503-638-6201
Fax: 503-638-8601
Email: info@sawstop.com

# 10" Cabinet Saw Comparison

| | SawStop | Powermatic 66 | Delta Unisaw | Jet Xacta |
|---|---|---|---|---|
| **Features** | | | | |
| Cast Iron Table and Extension Wings | ✓ | ✓ | ✓ | ✓ |
| Miter Gauge T-slots | ✓ | ✓ | ✓ | ✓ |
| Blade Guard | ✓ | ✓ | ✓ | ✓ |
| Widely spaced trunnions | ✓ | ✓ | ✓ | ✓ |
| Contact Detection and Braking System | ✓ | | | |
| European-Style Riving Knife | ✓ | | | |
| Blade Shroud Dust Collection | ✓ | | | |
| **Specifications** | | | | |
| Blade - 10" | ✓ | ✓ | ✓ | ✓ |
| Arbor - 5/8" | ✓ | ✓ | ✓ | ✓ |
| Motor - 3 HP, 1 Phase, 230V, 60 Hz. TEFC | ✓ | ✓ | ✓ | ✓ |
| Max. depth of cut - 3 1/8" | ✓ | ✓ | ✓ | ✓ |
| Max. depth of cut at 45° - 2 1/8" | ✓ | ✓ | ✓ | ✓ |
| Max. rip to left of blade - 12" | ✓ | ✓ | ✓ | ✓ |
| Table in front of blade at max. cut - at least 12" | ✓ | ✓ | ✓ | ✓ |
| Max. width of dado - 13/16" | ✓ | ✓ | ✓ | ✓ |
| Max. diameter of dado - 8" | ✓ | ✓ | ✓ | ✓ |
| Table height - 34" | ✓ | ✓ | ✓ | ✓ |
| Table size w/ extension wings - at least 27" x 36" | ✓ | ✓ | ✓ | ✓ |
| Arbor Speed - approx. 4000 rpm | ✓ | ✓ | ✓ | ✓ |
| Zero clearance insert | ✓ | | | |
| Main arbor bearing size in mm | 62 | 47 | 40 | 40 |
| Arbor diameter between bearings in mm | 23 | 20 | 17 | 17 |

Comparison based on the design specifications of the SawStop cabinet saw, on published specifications, and on actual measurements. The contact detection and braking system in the SawStop saw works to minimize injury. The severity of an injury will depend on the speed at which you contact the blade. You may incur a serious injury on a SawStop saw.

SawStop, LLC
22409 S.W. Newland Road
Wilsonville, OR 97070 USA
Phone: 503-638-6201
Fax: 503-638-8601
Email: info@sawstop.com

# 10" Contractor Saw Comparison

| | SawStop | Powermatic | Delta | Jet |
|---|---|---|---|---|
| **Features** | | | | |
| Cast Iron Table | ✓ | ✓ | ✓ | ✓ |
| Miter Gauge T-slots | ✓ | ✓ | ✓ | ✓ |
| Blade Guard | ✓ | ✓ | ✓ | ✓ |
| Contact Detection and Braking System | ✓ | | | |
| Blade Shroud Dust Collection | ✓ | | | |
| **Specifications** | | | | |
| Blade - 10" | ✓ | ✓ | ✓ | ✓ |
| Arbor - 5/8" | ✓ | ✓ | ✓ | ✓ |
| Motor - 1½ HP, 1 Phase, 115/230V, 60 Hz. TEFC | ✓ | ✓ | ✓ | ✓ |
| Max. depth of cut - 3 1/8" | ✓ | ✓ | ✓ | ✓ |
| Max. depth of cut at 45° - 2 1/8" | ✓ | ✓ | ✓ | ✓ |
| Max. rip to left of blade - at least 12" | ✓ | ✓ | ✓ | ✓ |
| Table in front of blade at max. cut - at least 11" | ✓ | ✓ | ✓ | ✓ |
| Max. width of dado - at least 13/16" | ✓ | ✓ | ✓ | ✓ |
| Max. diameter of dado - approx. 8" | ✓ | ✓ | ✓ | ✓ |
| Table height - 34" | ✓ | ✓ | ✓ | ✓ |
| Table size w/ extension wings - at least 27" x 40" | ✓ | ✓ | ✓ | ✓ |
| Arbor Speed - approx. 4000 rpm | ✓ | ✓ | ✓ | ✓ |
| Zero clearance insert | ✓ | | | |
| Main arbor bearing size in mm | 62 | 40 | 40 | 40 |
| Arbor diameter between bearings in mm | 23 | 17 | 17 | 17 |

Comparison based on the design specifications of the SawStop contractor saw, on published specifications, and on actual measurements. The contact detection and braking system in the SawStop saw works to minimize injury. The severity of an injury will depend on the speed at which you contact the blade. You may incur a serious injury on a SawStop saw.

July 24, 2003

SawStop, LLC
22409 SW Newland Road
Wilsonville, OR 97070

Attention: Mr. Renee Knight

Fax: 503-638-6201 Total Pages: 1

Dear Sir,

After reviewing Petition CP 03-2, Requesting Performance Standards for a System to Reduce or Prevent Injuries from Contact with the Blade of a Table Saw - Parts 1 and 2 (0841) currently available on the U.S. Customer Product Safety Commission website: http://www.cpsc.gov/library/foia/foia03/petition/peti.html, we, the undersigned, were shocked to learn that our personal points of view was misinterpreted as that of our company, UL International Limited.

We, the undersigned, are hereby expressing our great disappointment and objection to your unauthorized act to associate our names with the company name that we work for.

As a result, we demand for an immediate and unconditional removal of our names, our company name and addresses tabulated below from the petition that we have submitted in April, 2003 and any public statements regarding SawStop.

Should you have any questions, please feel free to contact the undersigned at

(Phone) +852 9301 9103, or
(Email) 03427105g@polyu.edu.hk

Address as shown in Index of Petitioners for Petition to Initiate Rulemaking for Table Saws:
18th Floor, Delta House, 3 On Yiu Street, Shatin, NT, Hong Kong

Names as shown in Index of Petitioners for Petition to Initiate Rulemaking for Table Saws:

CHOI, Edward

SINK, Pak Hiu

CHOI, Ivan

CHAN, Keith

TONG, Marco

LAU Shirley

MAN, Fung Wing

July 28, 2003

David A. Fanning
22409 S.W. Newland Road
Wilsonville, OR 97070
(360) 944-7204

Todd A. Stevenson, Secretary
Consumer Product Safety Commission
Washington, D.C. 20207

Re: Petition CP 03-2

Dear Mr. Stevenson:

Enclosed is a letter dated July 24, 2003 from seven individuals who had joined in the above-identified petition. Those individuals now demand that their names, addresses and company name be withdrawn from the petition.

Please let me know if you have any questions.

Sincerely,

David A. Fanning

C: Edward Choi, Pak Hiu Sink, Ivan Choi, Keith Chan, Marco Tong, Shirley Lau, FungWing Man

[redacted] Exhibit F [redacted]

**40 Table Saws**

40.1 These requirements cover table saws with blade diameter of up to 315 mm.

40.2 A saw blade shall be furnished with a table saw. The design of a table saw shall be such as to limit the size of a blade that may be installed on the arbor to one not larger than that tested on the assembly.

40.3 The arbor shall:

a) Be accessible from the top of the table to permit changing cutting tools such that tightening of the arbor nut is relatively easy.
b) Have a nominal diameter not less than 12.7 mm for a blade having a diameter less than 205 mm and not less than 15.9 mm for a blade having a diameter of 205 mm or more.
c) Have a normal rotation that is clockwise when viewed from the left of the position normally assumed by the operator.
d) Threaded such that the blade-retaining nut is tightened by the normal rotation of the arbor.

40.4 The blade supporting flange outer diameter of the contact surface shall not be less than 1/6 of the maximum recommended blade diameter for the table saw. At least one of the flanges shall be keyed to the output spindle. The radial overlap of the blade bearing surfaces of the inner and outer flange shall be at least 1/10 of the flange diameter.

40.5 The table insert shall be sufficiently large to make changing of the cutting tool and tightening of the arbor nut relatively easy. The table insert shall:

a) Be of a color contrasting to that of wood and to that of the saw table.
b) Have a slot for protruding saw blade, the width of the slot not to exceed 12 mm plus the width of the blade throughout the bevel range. A zero clearance table insert, where the slot is cut by the cutting tool is permitted. The width of the slot in the table inserts for cutting tools other than saw blade, i.e. dado, shall not to exceed 12 mm plus the width of the cutting tool.
c) Be securely held in place, so as to prevent unintentional or non-purposeful removal while the saw is in operation.
d) Be designed such that, when properly installed, no portion of the insert shall be above or more than 0.76 mm below the plane of the surface of the table.

40.6 A blade guard meeting the requirements of 40.6.1 – 40.6.4 shall be provided with a table saw. The guard may be attached to a spreader, riving knife/spreader combination unit or other equivalently effective mounting means. The guard shall:

a) Be made of material that is soft enough so that it will be unlikely to cause tooth breakage in the event of contact with blade.
b) Automatically adjust to the thickness of the workpiece and remain in contact with workpiece for all depth of cut and bevel position of the blade.
c) Completely enclose the top and the sides of the saw blade above the table but for the openings needed for or generated by the beveling function.
d) Rest on the table with either one or both sides, when the blade is set at 90° position. If one side rests on the table with the blade set at its 90° position, the other side shall rest on the table when the blade is tilted to its 45° position.
e) Allow the cutting edge of the blade to be visible from the operator's normal position when the guard is in the rest position on the table.

40.6.1 The guard may have an opening for the ejection or collection of sawdust.

40.6.2 Openings in the top or sides of the guard provided for blade visibility or ejection/collection of the saw dust shall be designed to assure that the discharge is directed away from the operator and

shall not hinder the vision of the user when the user is in the normal operating position and in addition shall not allow a 12.7 mm diameter probe to contact the blade when inserted 63.5 mm into the opening.

40.6.3 A guard and mounting means shall not offer any considerable resistance to the initial entrance of the workpiece to the saw blade or to the passage of material being sawed.

a) When common lumber size (1x or 2x) is advanced at recommended rate towards the blade at 45°, right or left miter angle, the guard shall not be displaced sideways to a point where the blade could touch any part of the guard surface.
b) During the test the spreader or the riving knife/spreader combination unit shall not be misaligned to a point to prevent unobstructed feeding of the tested lumber.
c) The tests are performed at 90° and 45° bevel positions.

40.6.4 A guard is not required for attachments, such as a dado set, a molding head and the like that are not intended to cut through the workpiece and operations such as plunge cuts and cove cuts.

40.7 Table saw shall be provided with a riving knife or riving knife/spreader combination unit.

40.8 If a table saw is equipped with the riving knife, it shall meet the requirements of 40.8.1 – 40.8.4.

40.8.1 The riving knife for a table saw shall:

a) Have a body thickness thicker than the body of the recommended saw blade but thinner than the kerf of the recommended saw blade.
b) Be located behind the saw blade and pass freely through the cutting groove.
c) Not contact the blade, be rigidly fixed and in alignment with the plane of the blade and as a result of any operation maintain the alignment with the blade.
d) Have its tip rounded, with a radius of not less than 2 mm, and its edges shall not be sharp. The faces of the riving knife shall be plane, smooth, parallel and shall be slightly chamfered on the edge facing the blade.
e) Have a width, measured at the table top level and at the maximum cutting depth of the saw, at least equal to 1/6 of the largest recommended blade diameter.
f) Be made of steel with a hardness of between 38 HRC and 48 HRC and a resistance to rupture at least equal to 800 Mpa or other equivalent material.
g) The thickness of the riving knife and the range of saw blade diameters for which it is intended shall be permanently marked on the riving knife, for example by engraving, stamping or etching.

40.8.2 The riving knife and its holder shall be so designed that for all recommended blade diameters and for any cutting depth adjustment with the blade is set perpendicularly to the table, the riving knife shall comply with the following specifications:

a) Above the table, the radial distance between the riving knife and the edge of the blade at its closest point to the saw blade shall be at least 3 mm and at no point shall the gap between the saw blade and the riving knife exceed 8 mm, as illustrated in figures 40.1.

b) The highest point of the riving knife shall be at least 1mm but not more than 5 mm below the highest point of the saw blade, as illustrated in figure 40.2.

40.8.3 The riving knife and its holder shall have the rigidity to comply with the following specifications:

a) For these test, the blade is set to maximum depth of cut at 90°. The fastening screws provided for the mounting of the riving knife are tightened in accordance with manufacturers instructions or in absence of recommendations, in accordance with the torque values from the table 40.1.

b) Within the construction limits of the riving knife and its holder, the riving knife is adjusted to the minimum distances near the top of the blade as specified in 40.8.2. At the center of the riving

knife tip, for 1 min a force of 500 N is applied in the cutting direction and parallel to the table as shown in figure 40.3. The riving knife shall not deflect or displace to contact the saw blade tips. In addition, after the test, the radial spacing between the tips of the saw blade and the riving knife shall not be less than 2 mm.

c) The riving knife is adjusted to the minimum distance in accordance with 40.8.2.b). At the center of the riving knife tip, for 1 minute a force of 30 N is applied perpendicular to the cutting direction and parallel to the table, as shown in figure 40.4. The test is made in both directions. The tip of the riving knife shall not deflect in the direction of the force by more than 3% of the maximum recommended saw blade diameter.

40.8.4 The riving knife shall be fastened in such a manner that a tool is required for its installation or removal.

40.9 If a table saw is equipped with the riving knife/spreader combination unit, it shall meet the requirements of 40.9.1 – 40 9.6.

a) The riving knife/spreader combination unit is a device that is adjustable to function as a spreader as well as a riving knife and it shall be designed such that it can accommodate the attachment of a removable guard and/or antikickback device.
b) The riving knife/spreader combination unit is considered in the "spreader position" when the attachment mechanism for the guard and/or antikickback device allow for the passage of a workpiece thickness equal to the blade height above the table top at any depth of cut setting.
c) The riving knife/spreader combination unit is considered in the "riving knife position" when all attachments such as the guard or the antikickback device are removed from the combination unit and at any depth of cut setting the combination unit is below the blade height above the table top.

40.9.1 The riving knife/spreader combination unit of the table saw shall:

a) Have a body thickness thicker than the body of the recommended saw blade but thinner than the kerf of the recommended saw blade.
b) Be located behind the saw blade and pass freely through the cutting groove.
c) Not contact the blade, be rigidly fixed and in alignment with the plane of the blade and as a result of any operation maintain the alignment with the blade.
d) Have the faces of the riving knife/spreader combination unit plane, smooth, parallel, the edges shall not be sharp and shall be slightly chamfered on the edge facing the blade.
e) Have a width, measured at the table top level and at the maximum cutting depth of the saw, at least equal to 1/5 of the largest recommended blade diameter.
f) Be made of steel with a hardness of between 38 HRC and 48 HRC and a resistance to rupture at least equal to 800 Mpa or other equivalent material.
g) The thickness of the riving knife/spreader combination unit and the range of saw blade diameters for which it is intended shall be permanently marked on the riving knife, for example by engraving, stamping or etching.

40.9.2 The riving knife/spreader combination unit and its holder shall be so designed that for all recommended blade diameters and for any cutting depth adjustment with the blade is set perpendicularly to the, table the riving knife/spreader combination unit shall comply with the following specifications:

a) When the riving knife/spreader combination unit is adjusted for the "spreader position", above the table, the radial distance between the riving knife/spreader combination unit and the edge of the blade at its closest point to the saw blade shall be at least 3 mm and at no point shall the gap between the saw blade and the riving knife/spreader combination unit exceed 8 mm, as illustrated in figure 40.1.

b) When the riving knife/spreader combination unit is adjusted for the "riving knife position" and the radial distance to the blade is in accordance with the 40.9.2a) the highest point of the riving knife/spreader combination unit shall be at least 1 mm but not more than 5 mm below the highest point of the saw blade, as illustrated in figure 40.2.

40.9.3 The riving knife/spreader combination unit and its holder, adjusted to the riving knife position, shall have the rigidity to comply with the following specifications.

a) For these test, the blade is set to maximum depth of cut at 90°. The fastening screws provided for the mounting of the combination unit are tightened in accordance with manufacturers instructions or in absence of recommendations, in accordance with the torque values from the table 40.1.

b) Within the construction limits of the riving knife/spreader combination unit and its holder, the combination unit is adjusted to minimum distances near the top of the blade, in accordance with 40.9.2. At the center of the riving knife/spreader combination unit tip, for 1 minute a force of 500 N is applied in the cutting direction and parallel to the table as shown in figure 40.3. The riving knife/spreader combination unit shall not deflect or displace to contact the saw blade tips. In addition, after the test, the radial spacing between the tips of the saw blade and the riving knife/spreader combination unit shall not be less than 2 mm.

c) The riving knife/spreader combination unit is adjusted is adjusted to the minimum distance in accordance with 40.9.2.b) At the center of the riving knife/spreader combination unit tip, for 1 minute a force of 30 N is applied perpendicular to the cutting direction and parallel to the table, as shown in figure 40.4. The test is made in both directions. The tip of the riving knife/spreader combination unit shall not deflect in the direction of the force by more than 3% of the maximum recommended saw blade diameter.

40.9.4 The riving knife/spreader combination unit shall be fastened in such a manner that a tool is required for its installation or removal.

40.9.5 The guard and/or the antikickback device attached to the riving knife/spreader combination unit shall be so designed, as not to create any new mechanical hazards if a sawing operation of a material thicker than the blade height above the table is attempted.

40.9.6 The adjustment of the riving knife/spreader combination unit between the "riving knife" and the "spreader" positions shall be accomplished without the aid of a tool in less than one minute.

Exception: A tool can be used for the adjustment of the riving knife/spreader combination unit, if such tool is permanently attached to the saw.

40.10 Table saw may be equipped with a spreader for mounting the guard and/or the antikickback device. The spreader shall:

a) Have attachment points for the guard and/or antikickback device that allow for passage of a workpiece thickness equal to the maximum blade height above the table top.
b) Be thinner than the kerf of the thinnest recommended saw blade.
c) Have faces that are smooth, parallel and have a chamfered leading edge.
d) Not interfere with table saw operations and will remain in true alignment with the blade and the riving knife throughout the entire bevel and depth of cut setting range.
e) The spreader shall be made of steel with a hardness of between 38 HRC and 48 HRC and a resistance to rupture at least equal to 800 Mpa or other equivalent material.
f) Be designed so that it can be removed and replaced without the use of tools with no need for readjustment or realignment.

40.11 An antikickback device(s) shall be provided with a table saw. The antikickback device(s) shall:

40.11.1 Provide holding power sufficient to prevent removal of soft pine lumber having a thickness within the capacity range of the table saw.

40.11.2 Be so designed as to oppose the thrust of a thrown workpiece by the blade. This requirement is verified by conducting the following test.

a) The blade is set to a maximum depth of cut at 90°. The riving knife/spreader combination unit in the spreader position is adjusted to the minimum distance near the top of the blade in accordance with the 40.9.2a.
b) Smoothly planed 19mm thick wooden test block, strong enough to withstand the applied forces, is partially split along it's long axis with a kerf and long enough to reach from the front of the blade is positioned under the antikickback device(s).
c) The antikickback device(s) is engaged against the test block.
d) For 1 minute a force of 500N is applied to the test block in the direction of the blade rotation, in the plane of the saw blade and parallel with the table top, as shown in figure 40.5.
e) During the test the antikickback device(s) shall remain attached to its support and engaged with the test workpiece. In addition the antikickback device(s) and its supporting member shall not contact the saw blade. If the antikickback device(s) are attached to spreader or other equivalent support, they shall not cause the riving knife to contact the blade.

40.12 If the guard, spreader or antikickback device are required to be removed for non-through cutting operations, the saw shall be designed so that these items can be easily removed and replaced without the use of tools. All of the items required to be removed for non through cutting operations shall be removable within a total of 20 seconds. In addition all of the items required to be removed for non through cutting operations shall be replaceable within a total of 20 seconds, with no need for readjustment or realignment.

Exception: A tool can be used to remove and replace the guard, spreader or the antikickback device if such tool is permanently attached to the saw.

40.13 Guarding beneath the table shall be provided so as to enclose the saw blade from unintentional contact and to reduce the likelihood of contact with moving parts of the drive mechanism. The saw frame, motor including a motor shipped detached from the saw, exhaust hood, and other enclosures under the table may be considered as a portion of the guarding.

40.13.1 If an open-bottomed enclosure is used to comply with the requirements in 40.13, the depth of the enclosure shall be such that the plane of the bottom is 25.4 mm or more below the bottom of the saw blade with the blade in its lowest position.

40.14 A rip fence shall be provided with a table saw and constructed so that it can be firmly secured to the table and so that it will not tend to loosen under normal operating conditions. The rip fence shall have a minimum height of 50 mm.

40.15 A saw shall incorporate automatic or manual devices to hold the cutting tool in a preset position, bevel or elevation. Adjusting mechanisms and positioning devices shall be constructed so that they will maintain their setting accurately during full-load operation for 10 minutes, including 12 intentional stalls of the saw blade, for each of cross-cut, cutoff-bevel, and rip positions. Positive adjusting means shall be provided at all necessary points to permit the saw to be adjusted for intended operation initially and to compensate for wear that may affect the initial adjustment.

40.16 A push stick shall be provided for use on all table saws. Provision shall be made for storing the push stick on the machine. Push sticks shall be made from a non-metallic material. The push stick shall have the strength to feed 150 mm wide 50 mm thick and 1800 mm long heavy hardwood lumber. The

minimum length for push sticks shall be 400 mm. An example of a push stick profile and of a suitable mouth design is shown in figure 40.6.

**Table 40.1**

| Nominal diameter of screw Inches (mm) | Tightening torque In/lbs. (Nm) |
|---|---|
| Over 0.142 (3.6) to and including 0.161 (4,1) | 20 (2.2) |
| Over 0.161(4.1) to and including 0.185 (4.7) | 29 (3.2) |
| Over 0.185 (4.7) to and including 0.209 (5.3) | 38 (4.3) |
| Over 0.209 (5.3) to and including 0.248 (6.3) | 66 (7.4) |
| Over 0.248 (6.3) to and including 0.288 (7.3) | 106 (12.0) |
| Over 0.288 (7.3) to and including 0.327 (8.3) | 160 (18.0) |
| Over 0.327 (8,3) to and including 0.394 (10.0) | 319 (36.0) |

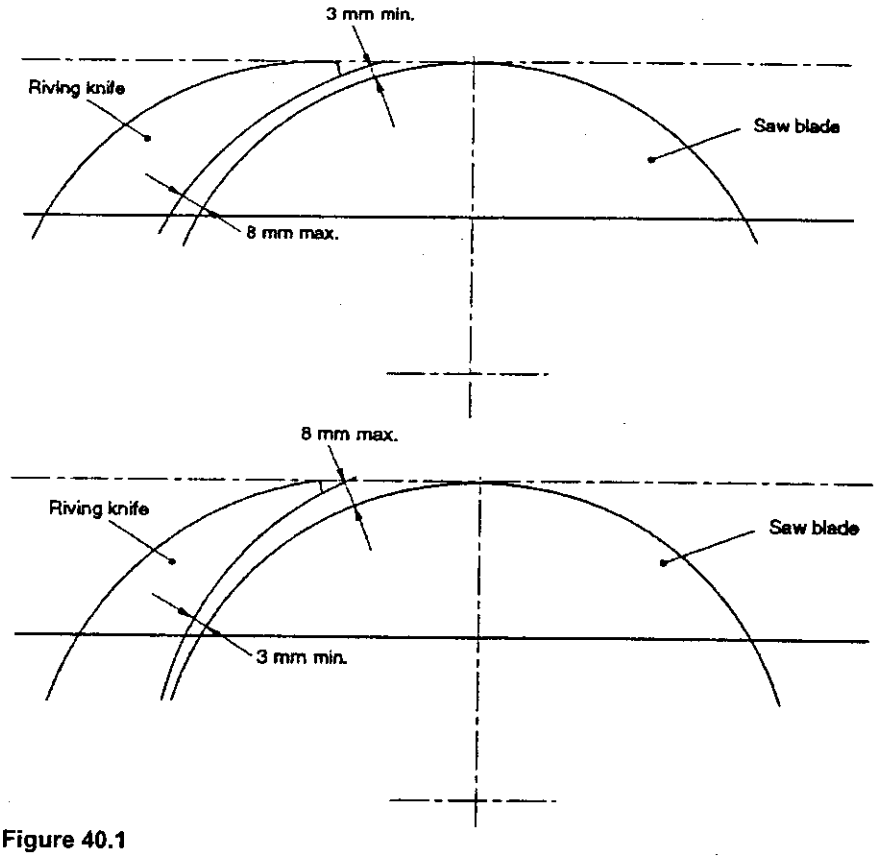


**Figure 40.1**

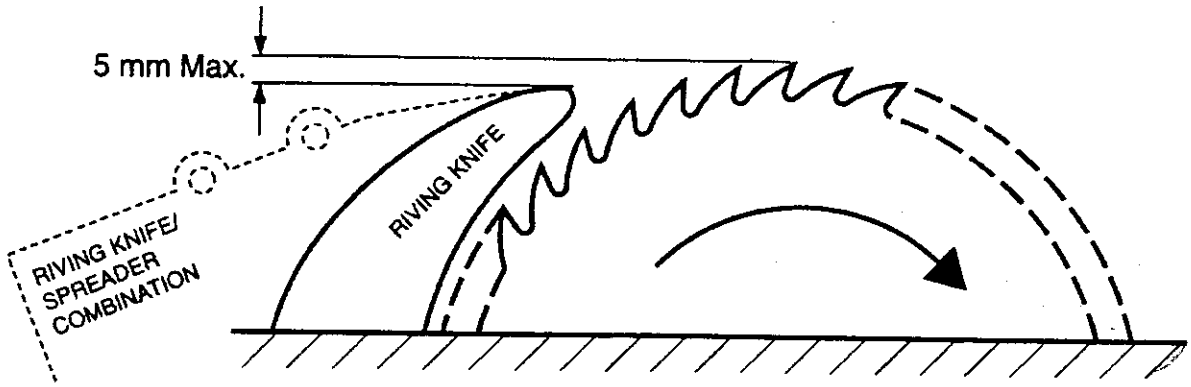


Figure 40.2

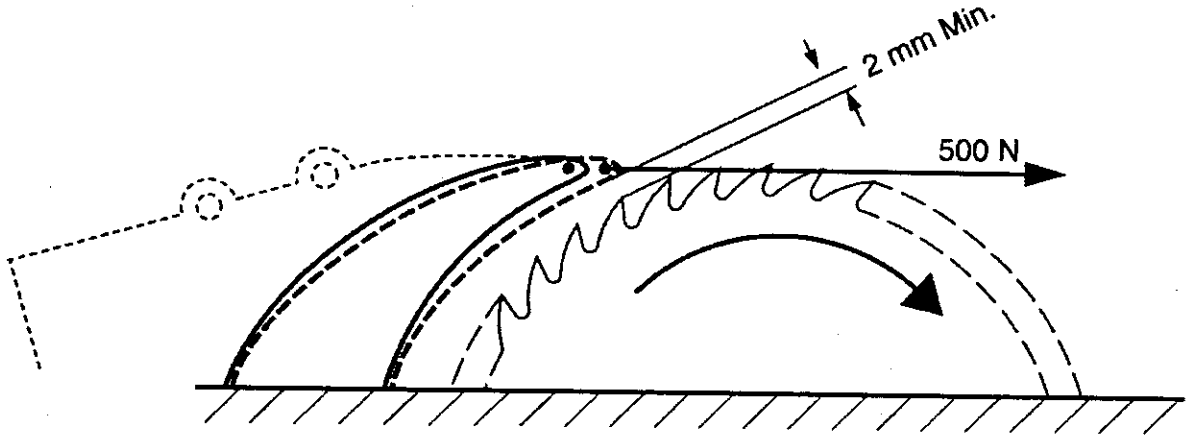


Figure 40.3

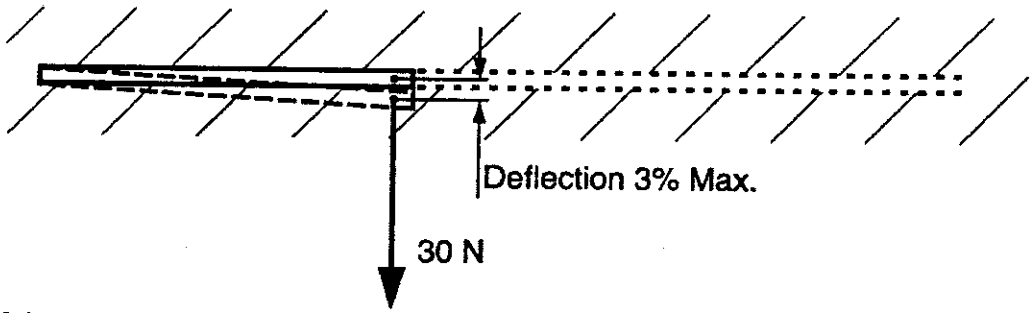


Figure 40.4

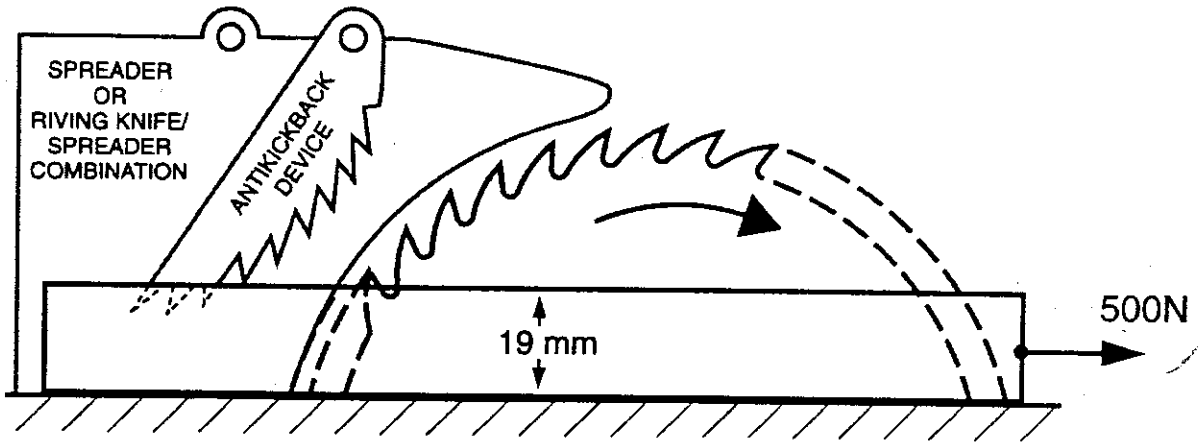


**Figure 40.5**

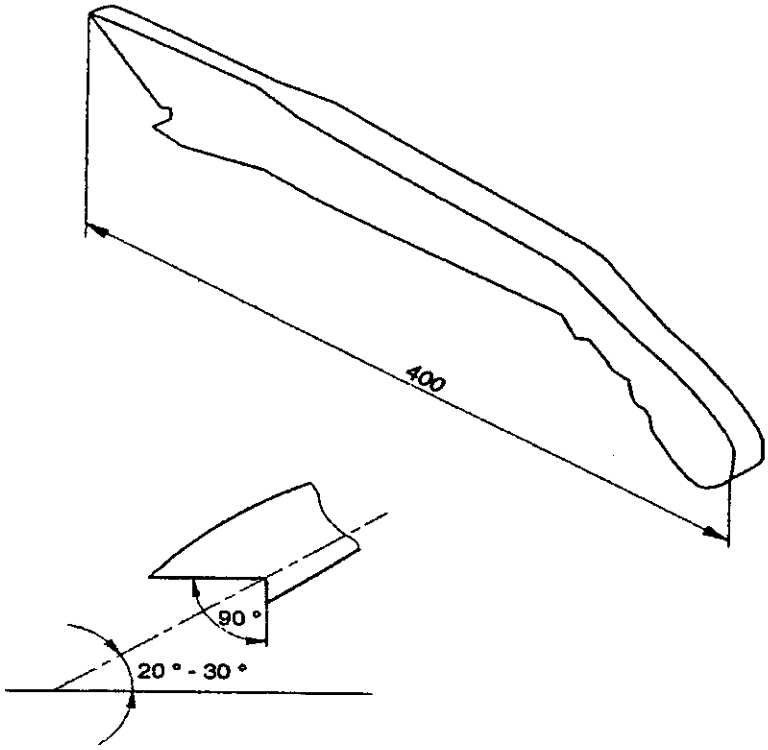


**Figure 40.6**

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October 20, 2003

Office of the Secretary
Consumer Product Safety Commission
Washington, DC 20207

2003 NOV 13 P 1:03
CPSC/OFFICE OF THE SECRETARY

Members of the Commission:

**SUBJECT: Petition CP 03-2, Petition for Performance Standards for Table Saws**

This letter sets forth the comments of the Manufacturers Alliance/MAPI Inc., on petition CP 03-2, Petition Requesting Performance Standards for a System To Reduce or Prevent Injuries From Contact With the Blade of a Table Saw. The instant petition requests that the Consumer Product Safety Commission (CPSC or the Commission) issue a rule prescribing "performance standards" for a system intended to reduce or prevent injuries from contact with the blade of a table saw. The petition also sets forth specific details regarding a detection/reaction system that is proposed by the petitioners to be required by the applicable standard covering table saws. This detection/reaction system is commonly known as "SawStop," which was invented by the three primary petitioners in this proceeding (i.e., Messrs. Gass, Fanning, and Fulmer). Collectively, these petitioners either hold, or have applied for, in excess of 30 patents relating to power tool brakes.

The Alliance opposes this petition for the reasons stated below, which the Commission may wish to consider in its deliberations on this matter.

Before listing our main concerns about this petition, however, I should note that the Alliance, established in 1933, is a not-for-profit corporation incorporated under the laws of the State of Delaware and exempt from taxation under Section 501(c)(6) of the Internal Revenue Code relating to business leagues. We engage in policy research, continuing professional education, and allied activities. Our corporate membership of some 350 companies includes U.S.-based and international entities engaged in manufacturing and related business services in such industries as electronics, aerospace, automotive, telecommunications, computers, precision instruments, chemicals, energy, factory automation, power and machine tools, and others. Alliance research and executive seminars primarily relate to management, economics and law, productivity and efficiency, innovation, economic growth, competitiveness, free trade, and sustainable development.

Our principal concerns over this petition are several. First, although couched in terms of a performance standard, this petition is a thinly-veiled attempt to have the Commission adopt a mandatory design standard in contravention of Section 7 of its enabling statute (15 U.S.C. §2056). While the petition casually suggests that it is seeking a performance standard that might be met by various technologies, the length at which it goes to extol the virtues of the SawStop technology clearly indicates that it is seeking mandated use of that specific technology. Indeed, the petitioners' expanding patent portfolio would seem to leave little, if any, room for possible competing technologies. Petitioners recognize that, were this petition to be granted, they would hold a virtual monopoly position. Such recognition is evinced when they magnanimously offer to license their technology for 8 percent of the wholesale price of each new table saw sold in this country. In such circumstances, the petitioners are clearly seeking a ***de facto*** design standard by asking the CPSC to promulgate a rule that would require all table saws manufactured for use in the United States to incorporate their patented device. For this reason alone, the petition should be rejected.

Second, the SawStop technology is virtually untested and unproven. (Even if it had been exhaustively tested and proven reliable, however, our first concern over a governmentally mandated design standard affording a monopoly position to a patent holder would not be satisfied.) The fact remains that no table saws employing the SawStop technology have been commercially produced, much less tested in a real-world environment. The absence of test data as to the reliability and durability of the SawStop device makes its mandatory incorporation on all table saws sold in this country patently inappropriate. Should petitioners develop a commercially viable table saw equipped with their safety device, consumers will be able to decide its efficacy and value by comparison with existing safety devices with proven track records.

Third, by seeking to have the Commission impose a mandatory standard, the petitioner is circumventing the well-established voluntary standard process—a process which has served the public particularly well in the case of table saws as well as for many other products. Table saws are the subject of a voluntary standard promulgated by Underwriters Laboratories, Inc. (UL), a not-for-profit organization dedicated to public safety. UL publishes UL Standards for Safety, many of which are recognized as American National Standards, developed through an American National Standards Institute (ANSI) accredited standards development process. UL publishes ANSI/UL 987—Standard for Stationary and Fixed Electric Tools, which encompasses table saws. This standard is maintained by the Standards Technical Panel (STP) of UL for Electrical Tools. The STP is a balanced, consensus body of members divided into three groups; that is, general interest (e.g., inventors and, as you know, CPSC staff that the Commission has decided to have participate in a non-voting capacity), producers, and users. Since the introduction of UL 987, the STP has overseen the evolution of this standard which is currently in its sixth edition. The best evidence indicates that there is 100 percent compliance with this voluntary standard with regard to table saws sold in the United States. Indeed, the dynamic STP process has been largely responsible for a dramatic decrease in the injury rate on table saws witnessed in the last decade.

Always receptive to new ideas for safety improvements, the STP for Electrical Tools recently entertained a proposal to examine the SawStop technology that was submitted by one of the instant petitioners. That proposal could not be reviewed because it lacked information as to criteria for testing and acceptance of the involved technology. Rather than attempting to remedy this filing deficiency, that particular individual chose to ignore the well-established voluntary standards process and file this petition. In recognition of the exemplary work of the STP for Electrical Tools to date, the Commission should deny this petition and allow the voluntary standards process to continue to promote proven table saw safety technology while carefully evaluating any new technology purporting to improve the safety performance of those products.

Additionally, an evaluation of the basic cost/benefit ratio of mandating the use of the SawStop technology on all table saws sold in the United States dictates rejection of this petition. Obviously, the costs associated with the testing and development of this unproven technology are significant. Should it prove viable, the design modification of existing saws to accommodate the new technology will be staggering. Added to these costs is the licensing fee for the proprietary technology which is said to be in the range of 8 percent of the saw's wholesale cost. We are talking about total extra costs incurred by manufacturers in the millions, or tens of millions, of dollars that will be passed on to consumers.

Moreover, it must be remembered that the SawStop device is a "one shot" mechanism. Each time it is activated, a new replacement activation cartridge will have to be installed by the user. These replacement cartridges can cost as much as $69.00. Also, activation is likely to destroy the saw's blade, requiring a replacement which will normally cost more than the replacement SawStop braking cartridge. One needs to also include in this consumer-cost equation the factor that the SawStop device has a propensity to false trip in certain scenarios (e.g., in instances when wet wood is being cut). Clearly, this product's use could prove to be commercially prohibitive from a cost perspective for many woodworkers.

What are the offsetting public benefits of this technology? Suffice it to say that given the untested and unproven nature of SawStop, it is impossible to realistically quantify any such benefits. General statistics as to the costs associated with table saw injuries are not relevant to any cost/benefit analysis, since there is no way to accurately gauge whether the instant technology will reduce those costs.

Finally, all of the above comments are directed specifically toward the SawStop technology which is the subject of the instant petition. The petition, however, raises an overriding public policy concern much broader than its particulars. Specifically, as we alluded to previously, the Alliance is concerned about this attempt by the owners of proprietary technology to circumvent the well-established voluntary standards process by having the Commission mandate use of their product/technology. While we recognize that, in certain circumstances, the CPSC is authorized to issue and enforce mandatory standards, we believe that such power should be exercised with great discretion. Whenever practicable, we advocate reliance on the voluntary standards-setting process which has served the public so well to date. The development and evolution of ANSI/UL 987, maintained by the STP for Electrical Tools, is a perfect example of the voluntary standards process working as it is intended; that is, to ensure that the safest, most reliable products are introduced into the marketplace. We believe that this sophisticated voluntary process has earned the right to be afforded every deference in the standards-setting hierarchy.

Thank you for consideration of these comments. We appreciate the opportunity to participate in this proceeding.

Sincerely,

Thomas J. Duesterberg
President and Chief Executive Officer